

Information for Federal Impact Assessment Challenge Participants

Did you know that each year the Federal government invests about \$135 billion in research and development? Federal research and development (R&D) covers a wide range of technology areas with applications in aerospace, biotechnology, chemical engineering, communications, electronics, information processing, manufacturing, materials, measurement standards, and much, much more. Each year, Federal researchers disclose more than 5,300 new inventions and publish more than 44,000 technical publications. Many of the technologies developed by Federal researchers are transferred to the private sector through formal agreements (e.g. patents, licenses, or cooperative research and development agreements) or through informal exchanges (e.g. publications, conference presentations or informal collaborations).

In an effort to encourage research into the economic and societal impact of Federal technology transfer activities, the National Institute of Standards and Technology ([NIST](#)) and the *Journal of Technology Transfer* present the Federal Impact Assessment (FIA) Challenge. This challenge calls on researchers to analyze the impact of a federally developed technology that has been transferred to the private sector and present the results in a paper suitable for publication. The complete Challenge Rules are in the Federal Register Notice announcing the Challenge and on the Event Website¹.

Why this Challenge?

Despite the proliferation of Federal research and the profound effect that many Federally developed technologies have upon our everyday life, relatively little effort has been made to assess the impact of these technologies.² The need to develop a better understanding of Federal technology transfer impact has increased since President Obama's 2011 Presidential Memorandum – *Accelerating Technology Transfer and Commercialization of Federal Research in Support of High-Growth Businesses*, which called on Federal agencies to establish performance goals, metrics, evaluation methods, and implementation plans to improve the effectiveness of Federal technology transfer activities.³

What is a Federally developed technology? Eligible technologies for this Challenge must meet two criteria, namely 1) the technology must have been developed in whole or in part by a Federal employee(s) during the course of their employment duties at any time over the past 30 years, and 2) the technology must have been transferred in a manner that can be traced back to the agency.

How do I assess one? The objective of this Challenge is to identify and measure economic and societal impacts that result from the transfer of Federally developed technologies. There are three steps:

1. First, you need to identify a technology that was transferred from a Federal agency. Information about federally transferred technologies can be found on the Federal Laboratories Consortium (FLC) website at www.federallabs.org as well as individual Federal agency websites. A list of Federal agencies that issue annual technology transfer reports is available at <https://www.nist.gov/tpo/agency-technology-transfer-reports>.
2. Next, you need to research the impact of this technology by examining who is using the technology, how they are using it, and what impacts have resulted from its

Key Info

Prizes: Finalists (up to 4) receive \$5,000 and an invitation to publish their paper in the *Journal of Technology Transfer*

Deadline: March 31, 2017, 5:00 pm ET

Eligibility Rules:

- The challenge is open to individuals over the age of 18 that are residents of the 50 United States, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa; and
- for-profit or non-profit corporations, institutions, or other validly formed legal entities organized or incorporated in, and which maintain a primary place of business in, any of the preceding jurisdictions.
- Federal employees are not eligible to participate.
- Any individuals or legal entities that have received Federal funds for the development of any part of a submission are ineligible.

Submission: original paper submitted as one single file.

Before you begin, review the Rules for complete details about the Challenge.

¹ <https://www.federalregister.gov/d/2016-23239> and <https://www.challenge.gov/challenge/federal-impact-assessment-challenge>

² Bozeman, B., Rimes H., and Youtie, J. (2015), "The evolving state-of-the-art in technology transfer research: Revisiting the contingent effectiveness model," *Research Policy*, Volume 44, Issue 1, February 2015, Pages 34-49.

³ See <https://www.whitehouse.gov/the-press-office/2011/10/28/presidential-memorandum-accelerating-technology-transfer-and-commercial>

use. Impacts may be assessed at the local, regional, national, or global levels using economic data or other societal data (e.g., measures of health, safety, or security).

3. **Finally, you should prepare** an original paper describing your research and the impact that you have identified. Your paper should clearly describe the technology you are assessing and include evidence of how it has been used since being transferred. Note that a variety of assessment methodologies could be used by Participants in this Challenge. Examples of commonly used approaches can be found at <https://www.nist.gov/tpo/other-agency-economic-impact-studies>.

Who should participate? This Challenge is open to anyone (or any organization) that meets the eligibility requirements described in the Rules. You do not need to be a technology expert or economist, but you should have an appetite for research and some familiarity with methods of impact analysis. Teaming is encouraged because of the scope and diversity of potential technology transfer studies, from understanding the technology to tracking its transfer and assessing its impact.

Original Paper Requirements -

1. include the author(s) and the name and email address of the official representative.
2. include text, figures, tables and references that describes a retrospective impact assessment of a federally developed technology(ies),
3. be an original work not previously published in any media (i.e., including but not limited to printed or otherwise reproduced text/graphics for sale or distribution to the public),
4. be a single file submitted in .doc, .docx, or .pdf format with text, figures, tables, and references contained within the Paper. There is no page limit,
5. provide an assessment of the economic and/or societal impacts of a technology or technologies that have been developed completely or in part by Federal researchers working at any Federal agency at any time over the past 30 years, and must have been transferred from a Federal agency,
6. provide a complete description of the impact methodology, including a description of the metrics used for the impact assessment. Citations of Federal technologies must be provided, for example by listing patent numbers, as well as citations of the transfer of the technologies to the private sector, for example by listing products and companies using licensed Federal technologies,
7. meet the Evaluation Criteria (see next section),
8. include original figures, tables, and text passages or, if any of these have been published elsewhere, Participants must have obtained written permission, at Participants' sole expense, from the copyright owner(s) for both the irrevocable use and distribution by NIST of the figure, tables, or text passages, in both print and online formats and evidence that such permission has been granted must be provided in the Paper. Any material received without such evidence will be assumed to originate from the authors,
9. must include in a separate section on the title page of the Paper, an acknowledgement of any individuals, grants, funds, or other entities that provided support for the Paper. Participants must disclose all relationships or interests that could have direct or potential influence or impart bias on the work, and
10. Paper shall not be prepared using Federal funds.

<https://www.challenge.gov/challenge/federal-impact-assessment-challenge>

How will your paper be evaluated? As described in the Rules, entries will initially be evaluated by subject matter experts. The four **Evaluation Criteria** are listed below:

1. Description of the technology. (20 points)

Papers must include a description of the technology being analyzed. In addition to describing the function and purpose of the technology, the description must also identify where and when the technology was developed, when the technology was transferred, and how the technology was transferred. Papers will be evaluated based on the presentation of a clear and adequate description of the technology being assessed.

2. Description of the demand environment. (30 points)

Papers must include a description of the demand environment. The demand environment is the environment in which the technology is utilized after it has been transferred from the agency. Papers should describe the types and number of individuals and/or organizations that utilize the technology. This should include researchers, consumers, and companies that make up the markets and industries affected. Papers will be evaluated based on the presentation of a clear and adequate description of the demand environment.

3. Description of methodologies used to gather and assess impact data. (20 points)

Papers must include a description of how impact data was gathered and assessed. This includes a description of all data sources, techniques used to clean, adjust or normalize data, and statistical methods employed. Papers will be evaluated based on the creativity and appropriateness of the methodology used to gather data and assess impacts.

4. Description of the economic and/or societal impacts that resulted from the technology transferred from the Federal agency. (30 points)

Papers must describe the economic and/or societal impact that resulted from the utilization of the technology once transferred from the agency. The description must be based on the evidence gathered and the statistical method(s) used to assess impacts in the demand environment. The description must include clearly defined metrics that allow for the benchmarking of impacts over time. Papers will be evaluated based on the degree to which reported impacts are presented in an accurate, unbiased, comprehensive, and convincing manner.

Final Judging: Up to 15 papers will be selected for evaluation by Judges, who will deliberate and determine the winners using three equally weighted criteria:

- **Novelty of the Approach** To what extent does the Paper describe a new, creative, or innovative approach to capturing the impact of a Federally funded and developed technology? The methodology should be described in detail.
- **Scope of the Assessment** How extensively does the Paper address the transfer of a federally funded technology, capturing as many impacts as possible? The technology being assessed, the demand environment, and any economic and/or societal benefits should be described in detail.
- **Quality of the Paper** To what extent does the Paper present a high-quality, well-reasoned and compelling argument for capturing the impact of a technology developed by the Federal government?

Have questions? Post your question on the Discussion Board at the Challenge Website, or email Mike Walsh at mike.walsh@nist.gov. NIST will be posting answers to questions on the Discussion Board.

<https://www.challenge.gov/challenge/federal-impact-assessment-challenge>